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Vitamin D Does Not Reduce the Incidence or Severity of URIs in Healthy Adults

Clinical Question

Does vitamin D supplementation reduce the incidence and/or severity of upper respiratory infections (URIs) in otherwise healthy adults?

Bottom Line

Vitamin D supplementation, at a dosage of 100,000 IU per month for 18 months, did not reduce the incidence or severity of URIs in healthy adults. This is the third randomized controlled trial with results that refute a purported benefit of supplemental vitamin D based on evidence initially reported from observational studies. Because vitamin D naturally comes from ingestion of dairy products and exposure to sunlight, it makes sense that observational studies of individuals with poor dietary intake (fast food instead of a healthy diet) and lack of exercise (couch time instead of outdoor physical activities) reported significant associations between low vitamin D levels and an increased risk of diabetes mellitus and cardiovascular disease. We need to stop checking vitamin D levels and wasting health resources, and instead encourage regular outdoor exercise and a healthy diet that includes fatty fish and dairy products. (Level of Evidence = 1b)

Reference

Murdoch DR, Slow S, Chambers ST, et al. Effect of vitamin D3 supplementation on upper respiratory tract infections in healthy adults: the VIDARIS randomized controlled trial. *JAMA*. 2012;308(13):1333-1339.

Study design: Randomized controlled trial (double-blinded)

Funding source: Government

Allocation: Concealed

Setting: Outpatient (any)

Synopsis

Observational studies report an inverse association between serum vitamin D levels

and the incidence of URIs in adults. These investigators randomly assigned (concealed allocation) 351 consenting healthy adults, 18 years or older, to receive oral vitamin D (200,000 IU initially and again at one month, and then 100,000 IU per month thereafter for 18 months) or identical placebo. Individuals masked to treatment group assignment assessed the primary outcomes using a validated symptom score questionnaire. The questionnaire asked about URI episode frequency, duration, and severity during the preceding month. Participants also contacted study personnel whenever they experienced URI-related symptoms. Secondary outcomes included positive nasopharyngeal swab viral test results, plasma calcium and serum vitamin D levels, and the number of days lost from work as a result of URIs. Complete follow-up occurred monthly for 91 percent of participants at 18 months. The study was 80 percent powered to detect a predetermined clinically relevant 20 percent difference in URI incidence between the treatment and control groups.

Using intention-to-treat analysis, there were no significant differences between the two groups in the duration or severity of URI episodes, the number of URI episodes associated with positive nasopharyngeal swab results, and the number of days lost from work because of URI symptoms. Mean baseline vitamin D levels were similar in both groups, and vitamin D supplementation resulted in a steep increase in levels (nearly double) in the treatment group, which was maintained throughout the study period. This is the third randomized controlled trial that showed no relationship between vitamin D levels and acute URIs (Li-Ng M, et al. *Epidemiol Infect*. 2009;137(10):1396-1404, and Laaksi I, et al. *J Infect Dis*. 2010; 202(5):809-814).

DAVID SLAWSON, MD

Vice Chair, Department of Family Medicine
University of Virginia
Charlottesville, Va. ■